



LIFE projekts

Assessment of ecosystem services for sustainable land use management in Latvia

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“LIFE EcosystemServices”

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PRESENTATION QUESTIONS

- (i) What is the role of ecosystems and ecosystem services in territorial planning and how it relates with economics and human well – being?
- (ii) How could policy makers, public and private sector representatives can benefit from ecosystem services approach?
- (iii) How could ecosystem services approach be integrated in decision making processes?





ES UNDER THE BIG, MEDIUM AND SMALL UMBRELLA

- **Millennium Ecosystem Assessment** – ANO initiative, 2000 – scientifically justified policy
- **MAES** - Working Group on Mapping and Assessing Ecosystems and their Services
- **European Commission Biodiversity Strategy for 2020** - mapping and assessing the state of ecosystem services until 2014 (country-wise); - assessing the economic value of ecosystem services until 2020.
- Sustainable Development Strategy for Latvia until 2030 «Latvia 2030» and National Development Plan for Latvia for 2014-2020 «NAP 2020»





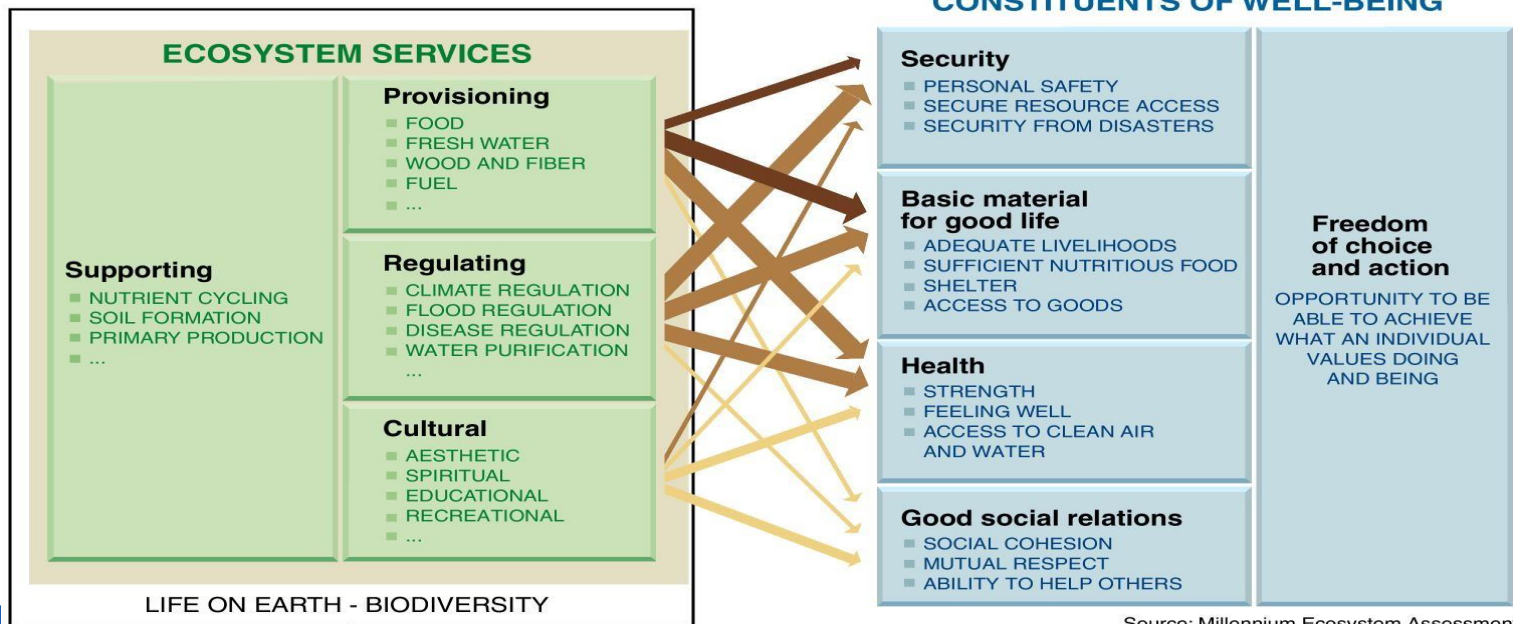
PROBLEMS: OVERVIEW OF FINDINGS

- Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time
- The changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs
- Climate change impacts on ecosystems – scientists have concluded over the last three decades, human-induced warming had likely had a discernible influence on many physical and biological systems





Consequences of Ecosystem Change for Human Well-being



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

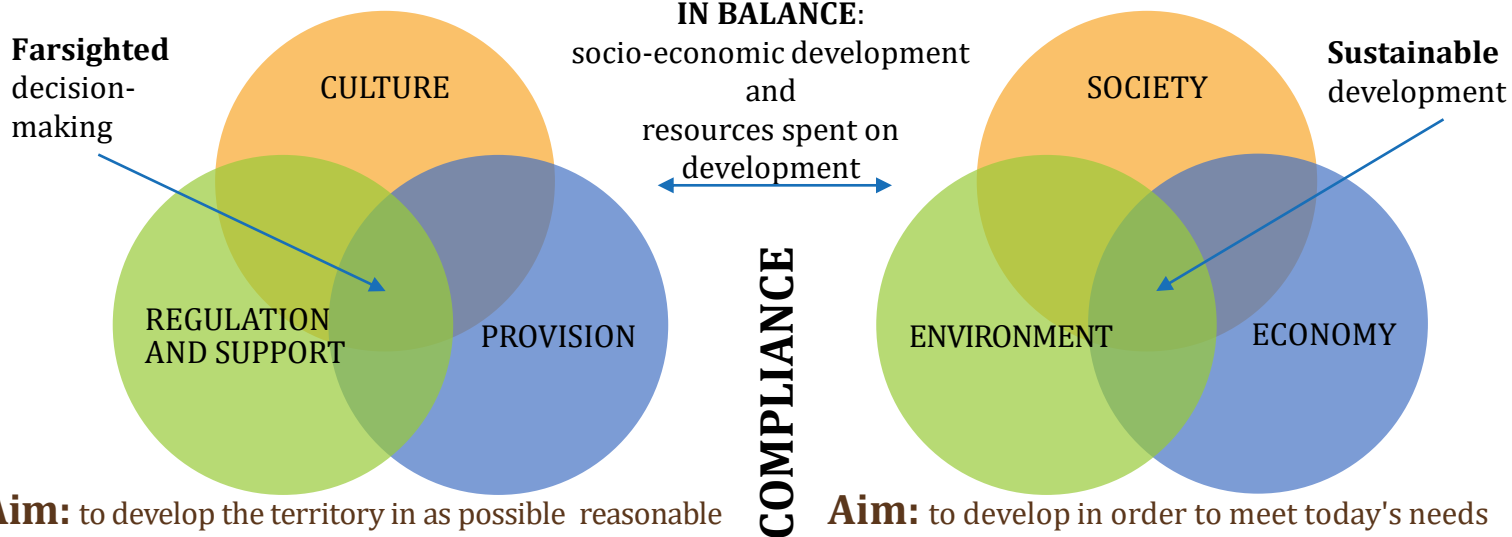
- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong



ECOSYSTEM SERVICES APPROACH AND SUSTAINABLE DEVELOPMENT – CORRELATION



Aim: to develop the territory in as possible reasonable way and not degrading the natural environment

Steps: ES mapping, assessment, modeling development scenarios with benefit and loss analysis, decision-making, implementation

Aim: to develop in order to meet today's needs without compromising the needs of future generations.

Steps: identification of the situation (needs and opportunities), definition of visions, strategic goals and priorities, action programs and budget planning, implementation





CORRELATION BETWEEN ECOSYSTEM SERVICES AND ECONOMIC ACTIVITIES



Economic activity **affects** ecosystems and ecosystem services



Changes of ecosystem can cause **risks and opportunities** for economic activity



Economic activity **depends** on ecosystems and their services



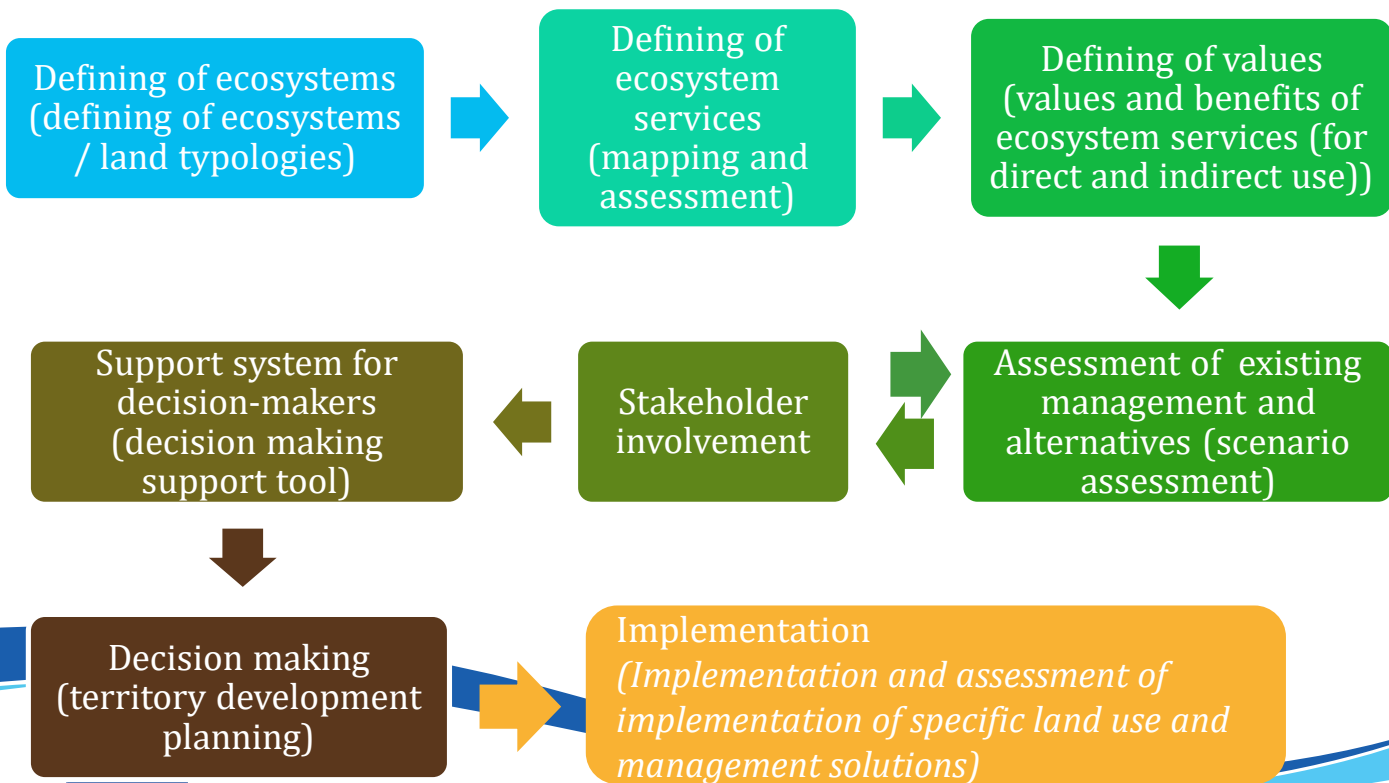


BENEFITS OF BRINGING ECOSYSTEM APPROACH INTO DECISION MAKING I

- **Involve different interest groups and facilitate communication** including those that represent environmental needs and future demands, and integrate their preferences into decision-making
- **Understanding the full value of the natural environment.** Defines and evaluates also "less tangible" or non-material ES
- **Highlights benefits and trade-offs** between different land-use options
- **Opportunity to assess the benefits** of environmental and nature conservation measures
- **Open up new opportunities for environmental markets**



ECOSYSTEM SERVICES APPROACH IN THE TERRITORIAL PLANNING AND MANAGEMENT PROCESS





A case study

APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA



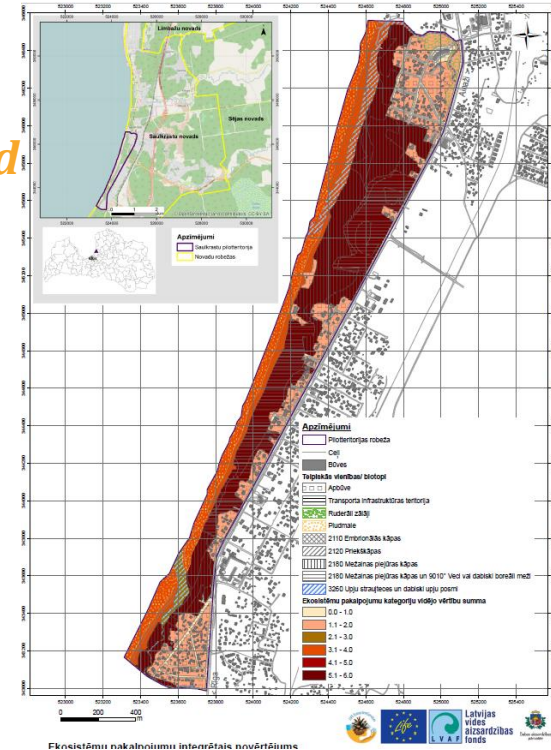


APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA

1st and 2nd Step

Identification and assessment of ecosystems and their services in the Saulkrasti Pilot Area

- Characteristics of the Pilot Area
- Habitat quality maps
- Evaluation methodology
- Indicators for ecosystem services assessment
- Ecosystem services assessment
- Individual maps of ecosystem services assessment



More detailed information available:

https://ekosistemas.daba.gov.lv/public/lat/rezultati_un_publicijas1/ekosistemu_pakalpojumu_kartesana/



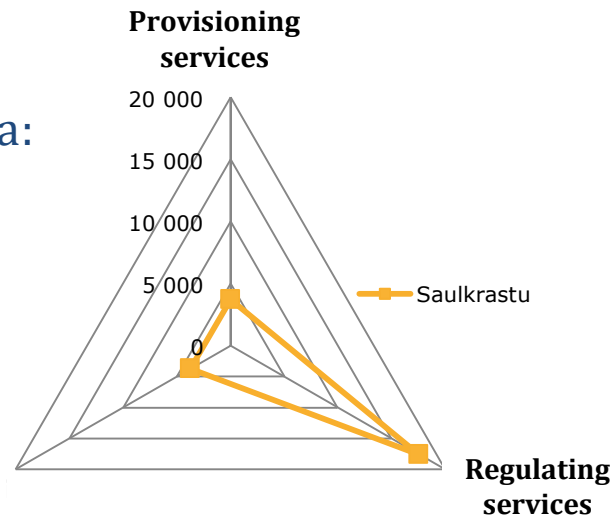
APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA

3rd Step

Economic evaluation of ecosystem services :

- Economic evaluation based on secondary data:
 - Market Price method;
 - Benefit Transfer method
- Economic evaluation based on primary data:
 - Travel Cost method

Cultural
services



More detailed information available:

https://ekosistemas.daba.gov.lv/public/lat/rezultati_un_publicacijas1/ekonomiska_novertesana/

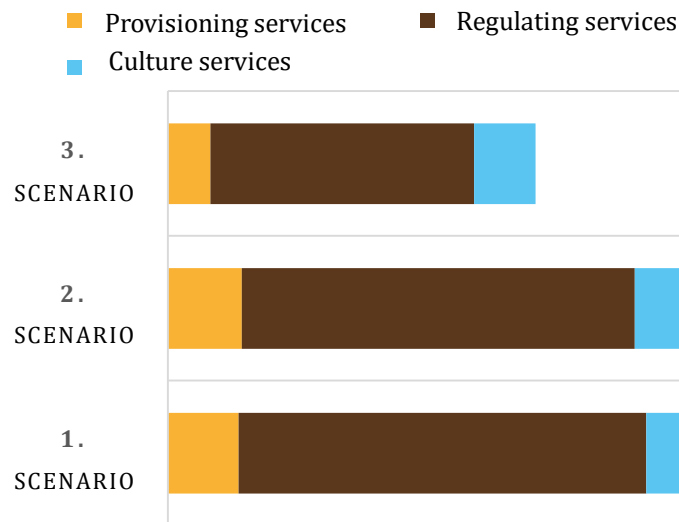


APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA

4th Step

Modeling and evaluation of scenarios:

- 3rd SCENARIO - Uncontrolled development scenario;
- 2nd SCENARIO - Planned development scenario “Establishment of Nature Design Park”;
- 1st SCENARIO - Evaluation of the existing situation in the Pilot Areas (2015).



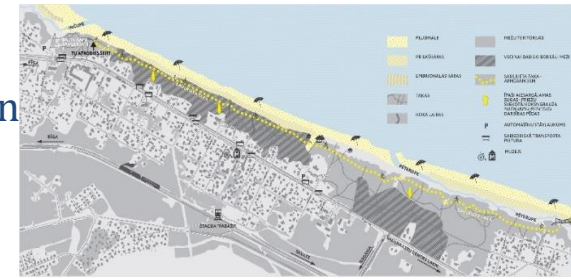
More detailed information available:

https://ekosistemas.daba.gov.lv/public/lat/rezultati_un_publicacijas1/scenariju_ekonomiska_novertesana/

APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA

5th and 6th Step. Stakeholder involvement and decision-making for sustainable development of the territory:

- Thematic and functional zoning of the Pilot Area, landscape, infrastructure and functional recommendations to promote ecosystem conservation and improvement;
- Promotion of restoration of the embryonic dunes scientific and practical justification for the pilot implementation;
- Recommendations and proposals for conservation of biological values



More detailed information available:

https://ekosistemas.daba.gov.lv/public/lat/rezultati_un_publicacijas1/vides_dizaina_objekti_saulkrastos1/

APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA

7th Step. Integration of ecosystem services approach into planning documents

Review, evaluation and updating of Saulkrasti Municipality Development Program for 2014-2020, by application of the ecosystem services approach and Project results in the context of the Pilot Area



Saulkrastu novada attīstības
programma
2014. – 2020. gadam

 **ESF** IEGULDĪUMS TAVĀ NĀKOTNĒ
ESF ir Eiropas Savienības finansējums



2013



More detailed information available:

https://ekosistemas.daba.gov.lv/public/lat/rezultati_un_publicācijas1/vides_dizaina_objekti_saulkrastos1/

APPLICATION OF ECOSYSTEM SERVICES APPROACH IN SAULKRASTI PILOT AREA

8th Step. Practical implementation of decisions

Sections of completed tasks:

- Establishment of the Nature Design Park «White Dune Saulkrasti»;
- Assessment of offshore processes (erosion and accumulation). Conceptual recommendations for mitigation and management of erosion / **Practical measures for the restoration of embryonic dunes;**
- **Proposals and recommendations for preservation of biological values of the habitat Wooded Coastal Dunes;**
- **Monitoring.**



More detailed information available:

https://ekosistemas.daba.gov.lv/public/lat/rezultati_un_publicacijas1/vides_dizaina_objekti_saulkrastos1/



ECOSYSTEM SERVICES APPROACH IN TERRITORIAL PLANNING – RECOMMENDATIONS AND TOOL





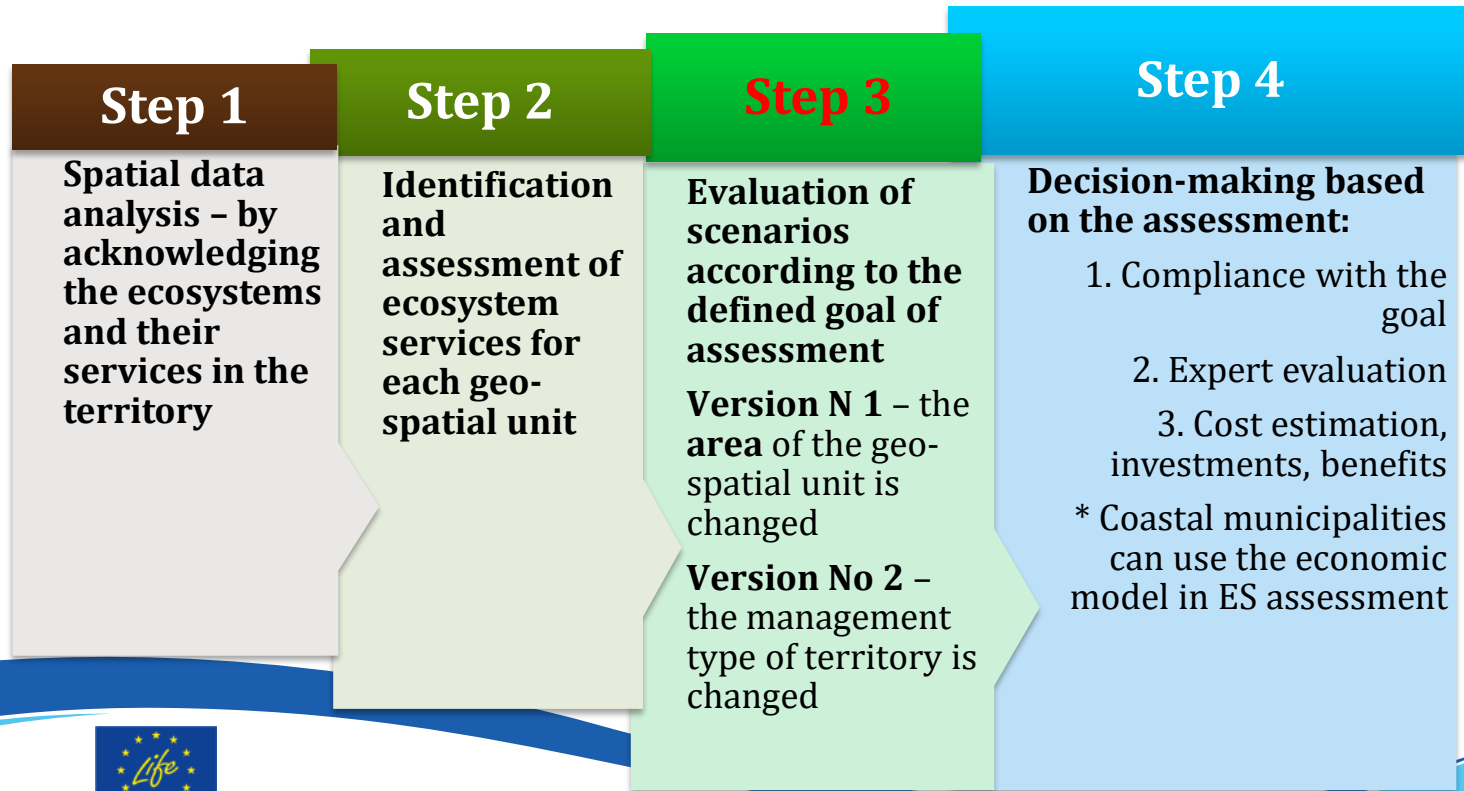
RECOMMENDATIONS FOR THE APPLICATION OF THE ECOSYSTEM SERVICES APPROACH AT NATIONAL, REGIONAL AND LOCAL LEVEL

- **Recommendations at the National level** – a general and broad vision with respect to the ecosystems and the services they provide. Coordinating role in the process of application of the ESA.
- **Recommendations at the Regional level** – coordinating role in order to implement the framework at the municipal level in a coordinated way, in cooperation with neighbouring municipalities, as well as according to regional goals;
- **Recommendations at the Local level** – implementation, cooperation
Common principles, different approaches and levels of detail





ELABORATED TOOLS FOR APPLICATION OF ECOSYSTEM SERVICES APPROACH AT THE LOCAL LEVEL





VERSION NO 1 – THE AREA OF THE GEO-SPATIAL UNIT IS CHANGED



Kategorija	Nodala	Grupa	Klase	Indikators	Emšlāna Pūtna	Kāpas		Meži	Ūdeņu teritorija	Apbūves teritorijas					Dabas un apstādījumu teritorijas			Teritorijas kopējā platība				
					14	20	28	16	44	Pūlītājs apbūves teritorija	Transporta infrastruktūras teritorija	Savrupmāju apbūves teritorija	Mazvalsts dzīvokļu apbūves teritorija	Daudzstāvu dzīvokļu apbūves teritorija	Jauktas centra apbūves teritorija	Lauksaimniecības teritorija	Pļavas		Purva	442		
Apgādes pakalpojumi	Produkti vai Pārkares resursi	Biomasa	Kultivēti lauksaimniecība	Graudaugu, sēņaugu, pīrāaugu, olīvu, zāļu, augu, Lapaļas							1	1			3			0.4				
			Mājlopi	Mājlopi												2			0.1			
			Savvaļas augi, sēnes, alģes un to produkti	Meža ogu raža		2	4										3	3		0.2		
			Savvaļas dzīvnieki	Mečdžumi													3	2	1	0.8		
			Savvaļas zivs (upes)	Zivju daudzums						3									1	0.1		
	Materiāli	Biomasa	Sēšanas un citi materiāli no augiem, aļģēm un dzīvniekiem tieši izmantojamai vai pārveidošanai	Ūdeņu izstrāšana					5										0.2			
			Sēšanas un citi materiāli no augiem, aļģēm un dzīvniekiem tieši izmantojamai vai pārveidošanai	Potenciāls				1									3			0.2		
			Sēšanas un citi materiāli no augiem, aļģēm un dzīvniekiem tieši izmantojamai vai pārveidošanai	Izstrādātais				1										1	1	0.2		
			Biomasa enerģētiskās vajadzībām	Potenciāls													3	2		0.2		
			Biomasa enerģētiskās vajadzībām	Izstrādātais																	0.2	
Enerģija	Biomasa enerģijas resursi	Augu valsts izstrādes resursi	Potenciāls				1											0.2				
Izaugsmes, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās, atjaunošanās	Procesi ekosistēmās	Piesārņotā un izstrāšanas procesi ekosistēmās	Augnes sija barības vielu piesātinātība un uzturētā		1	1	1	2									5	5	1.1			
			Piesārņojuma atjaunošana satīdēns ekosistēmās	Piesārņojuma atjaunošana satīdēns ekosistēmās					4											0.4		
			Īstenošana atmosfērā, satīdēns ekosistēmās	Īstenošana atmosfērā, satīdēns ekosistēmās													1	5		0.2		
			Īstenošana atmosfērā, satīdēns ekosistēmās	Piesārņotā sektoru vai piesārņotāju vielu daudzums															5	0.7		
			Īstenošana atmosfērā, satīdēns ekosistēmās	Autības izstrābe					4												0.1	
	Dabotāji un cilvēki	Dabotāji un cilvēki	Erozijas kontrole	Sānu apoms mūsdienīgu eroziju atjaunošana	Sānu apoms mūsdienīgu eroziju atjaunošana		1	2												0.1		
				Veģetācijas segums, kas aizsargā saukstēmas ekosistēmas pret eroziju	Veģetācijas segums, kas aizsargā saukstēmas ekosistēmas pret eroziju												3	5	5		1.1	
				Bufenfunkcija un masu pļāmas vājināšana	Sānu apoms mūsdienīgu eroziju atjaunošana		4															0.1
				Īstenošana atmosfērā, satīdēns ekosistēmās	Nogulumu, izstrādāto un izstrādāto eroziju atjaunošana					2								2	1	5		1.1
				Īstenošana atmosfērā, satīdēns ekosistēmās	Meža sēšanas atjaunošana					3												0.1
Pārveidošana	Pārveidošana	Pārveidošana	Sānu apoms mūsdienīgu eroziju atjaunošana	Sānu apoms mūsdienīgu eroziju atjaunošana		4	2												0.1			

1. The user enters area values for the territories, which are planned to be processed;
2. Advanced users are offered to perform a reassessment of the provided ecosystem services;
3. In the second step, the area values of the territory are adjusted according to the changed land use.



VERSION No 2 – THE MANAGEMENT TYPE OF TERRITORY IS CHANGED

1. In the Module II the same territories are presented as in the Module I
2. The user is offered to choose one of the 2-4 offered site management scenarios:
 1. Development, which is focused on economic benefits;
 2. A scenario that focuses on preserving nature values;
 3. Sustainable development, striving for balance.

Scenāriji	Apgādes pakalpojumi			Regulējošie pakalpojumi										Kultūras pakalpojumi		Senārija īss kopsavilkums un atainotā izmaiņu ietekmju skaidrojumi	
	Produkti vai Pārības resursi	Ūdens drošība	Ūdens apgāde	Materiāli	Enerģija	Aizsardzība, tīrīšana un citu kaitīgu materiālu medīšana vai atvēršana	Pilnu medīšana jeb starpcieņa	Fiziskā, ķīmiskā un bioloģiskā apstāņu uzturēšana	Fiziskā un intelektuālā mājokļa vai biotopu ekosistēmām un ainavām (vides ietekme)	Fiziskā un intelektuālā mājokļa vai biotopu ekosistēmām un ainavām (vides ietekme)		Fiziskā un intelektuālā mājokļa vai biotopu ekosistēmām un ainavām (vides ietekme)					
Pietrasi	NODZĒST																
Meži	NODZĒST																
Ūdeņi	NODZĒST																
Apgādes teritorija	2. Zālā un zilā infrastruktūra																
Lauksaimniecības zemes																	
Zaļāji	NODZĒST																
Mitāji	NODZĒST																
e6	paredzama pozitīva ietekme uz EP																
e7	paredzama negatīva ietekme uz EP																
e4	paredzama neliela pozitīva ietekme uz EP																
e3	paredzama neliela negatīva ietekme uz EP																
e5	neparedzama ietekme EP funkciju / kvalitātes vai ietekmes nav																
e0	ja teritorijā ekosistēmā EP netiek nodrošināta																



Thank You!

<http://ekosistemas.daba.gov.lv>

